THE

ONTARIO WATER RESOURCES

COMMISSION

WATER QUALITY SURVEY

OF THE

GANARASKA RIVER

1964

THE ONTARIO WATER RESOURCES COMMISSION

report on

Water Quality Survey

of the

Ganaraska River

June, 1964

Water Quality Survey

Ganaraska River

INDEX

INTRODUCTION

A water quality survey of the Ganaraska River was performed on June 2, 1964. Surveys of this type are made routinely by the Ontario Water Resources Commission to obtain a general assessment of the sanitary quality of the waters of various lakes and rivers. Samples are collected at selected locations and submitted for bacteriological examination and sanitary chemical analysis.

WATERSHED

The Ganaraska River Watershed is a funnel-shaped area extending east and west through Durham County, with a fringe area in Northumberland County, and narrowing sharply at its base at the Town of Port Hope where it empties into Lake Ontario. At its widest part, from east to west, the watershed extends for 18 miles, and the distance from its most northerly point to Lake Ontario is 13.75 miles. The area of the watershed is approximately 103 square miles or an estimated 65,911 acres.

The main branch rises in the upper part of the 8th Concession of the Township of Clark and empties into Lake Ontario at the Town of Port Hope after traversing a distance of 21.75 miles. The other large branch, known as the North Ganaraska, rises in Concession seven, of the Township of Hope and joins the main branch at Canton after flowing a distance of 10.5 miles. There are many smaller tributaries to the main branches of the Ganaraska River.

The drop in elevation of the main river from its source to its mouth is approximately 747 feet or 34.3 feet per mile.

No rapids of note occur, although throughout its length the stream flow, in a generally gravel bed, is fast. At Port Hope,

where the river passes over a rocky bed, it reaches the nearest approach to full rapids. This turbulence provides a considerable amount of aeration.

WATER USES

Since the greatest portion of the stream flows through an agricultural area, there is no municipal use, and with the exception of grist mill power, no industrial use of its water.

Several picnic areas are situated along the river; however, it is probable that swimming is not extensive.

HYDROLOGY

Flows are measured at the highway bridge one-half mile west of the hamlet of Dale and are available from the Department of Northern Affairs and National Resources. Minimum flows during summer months would appear to approximate 50 cubic feet per second. During spring freshets, maximum flows ranging around 300 cubic feet per second occur. Stream flow readings taken during the months of May and June, 1964, were 78.6 cubic feet per second and 47.4 cubic feet per second, respectively. It is therefore noted that the flow during the sampling period was generally minimal.

SAMPLING

Samples were collected at various locations and submitted to the Ontario Water Resources Commission Laboratory for bacteriological examination and sanitary chemical analysis. A map showing the sampling point locations is appended to this report. The sample results are also appended.

The weather on June 2, was sunny with the temperature ranging above 60°F.

INTERPRETATION AND SIGNIFICANCE OF LABORATORY ANALYSES

The analyses employed to assess the quality of water samples collected during this survey were biochemical oxygen demand, (BOD), suspended solids, and the total coliform determination.

The BOD of sewage, industrial wastes, or polluted waters, is the oxygen required during stabilization (natural purification in a stream) of the decomposable organic or chemical material by aerobic biochemical action. Unless otherwise noted, the 5-day BOD determination with incubation at 20°C is reported. A high BOD is indicative of organic or chemical pollution. A desirable upper limit in surface water is four parts per million.

Suspended solids are reported in parts per million and indicate the measure of undissolved solids of organic or inorganic nature.

The total coliform count is employed to obtain an enumeration of coliform organisms, and the number is reported per 100 ml of the sample collected. The membrane filter technique was used in the examination of these samples. A maximum limit of 2400 coliform organisms per 100 ml of water is the OWRC objective for the bacteriological quality of surface water in Ontario.

SAMPLE RESULTS

With the exception of two locations, none of the samples collected exceeded the Commission objective for water quality with respect to BOD, suspended solids, and coliform content. At sample point No. GAN 12.1 and GAN 13.5, slightly high suspended solids contents were noted. Counts were minimal in the upper reaches, but increased to limits approaching Commission objectives as the river passes through Port Hope. This could be due to the influence of

some storm sewer discharges within the Town of Port Hope. These are dealt with in a separate report on the Town of Port Hope.

SUMMARY AND CONCLUSIONS

A water quality survey of the Ganaraska River revealed generally satisfactory conditions with respect to the sanitary quality of the water.

Counts were minimal in the upper reaches and increased slightly at the Town of Port Hope.

All of which is respectfully submitted,

District Engineer: _____
J. K. Theil

Approved by: _____
K. H. Sharpe, Director

/mh

GANARASKA RIVER

Date of Sampling - June 2, 1964, by M. Holy

Sample Point No.	Description of Sampling Points	5-day BOD ppm	SOLIDS Total	SOLIDS Susp.	SOLIDS Diss.	Total Coliforms/100ml
GA 0.2	Ganaraska River Mouth -at Docks in Port Hope	1.3	202	7	195	2,200
GA 0.4	Ganaraska River at Peter St. bridge	0.9	224	9	215	2,200
GA 0.6	" " at Walton St. bridge	1.1	216	12	204	1,100
GA 1.0	" " at Barrett St. bridge	1.0	216	6	210	1,500
GA 1.8	" " at Cavan St. North	0.9	228	7	221	54
GA 3.5	" " at Highway 106	---	---	-	---	36
GAQ 5.8	Quays Branch to Main River	---	---	-	---	28
GAN 6.3	Mouth of North Branch	1.2	220	12	208	74
GA 6.3	Main Branch above confluence with North Branch	---	---	-	---	62
GA 8.7	Main Branch below junction with Cold Springs Creek	---	---	-	---	22
GAL 14.2	Little Ganaraska below Elizabethville	0.6	212	2	210	33
GA 17.0	Main Branch below Kendall	---	---	-	---	110
GA 18.0	Main Branch above Kendall	---	---	-	---	44
GAN 11.0	North Ganaraska at Concession Road below Garden Hill	1.6	218	15	203	42
GAN 12.1	North Ganaraska at sideroad below Garden Hill	2.4	262	48	214	260
GAN 13.5	North Ganaraska just below Gristmill south of Campbellcroft	1.8	210	21	189	230

78°35'
78°30'
78°25'
78°20'
78°15'
44°05'
44°00'
43°55'

MANVERS TWP.
CAVAN TWP.
NORTHUMBERLAND C.
CLARKE TWP.
HOPE TWP.
DURHAM C.
HAMILTON TWP.

CANADIAN NATIONAL RAILWAY
DAM
DAM
DAM
CAMPBELLCROFT
GARDEN HILL
ELIZABETHVILLE
PERRYTOWN
KENDAL
CANTON
PORT HOPE
GANARASKA RIVER
GANARASKA RIVER
GANARASKA
GAGE CREEK
GAGE CREEK
DAM
C.N.R.
C.N.R.
STP.
HWY. 401
28
28
2

GAN-13.6
GAN-13.5
GAN-14.0
GAN-12.1
GAN-11.0
GAL-14.5
GAL-14.2
GA-18.0
GA-17.0
GA-8.7
GAN-6.3
GAQ-5.8
GAD-4.1
GA-6.3
GA-5.8
GA-3.5
GE-2.2
GE-2.1
GA-1.8
GE-0.3
GE-0.1
GA-1.0
GA-0.9
GA-0.6
GA-0.4
GA-0.2

LAKE ONTARIO

ACREAGE OF WATERSHEDS.
GANARASKA RIVER ---- 68,718. ACRES.
GAGE CREEK------ 12,354. ACRES.

LEGEND
GA-1.0 — SAMPLING POINT SHOWING STREAM AND MILEAGE
——— ——— ——— — TOWNSHIP BOUNDARIES
·· ——— ·· ——— ·· — COUNTY BOUNDARIES

SCALE
1 mi = 1.25"

ONTARIO WATER RESOURCES COMMISSION

GANARASKA RIVER AND
GAGE CREEK WATERSHEDS

SCALE: 1:50,000	
DRAWN BY: S.H.	DATE: 1964
CHECKED BY:	DRAWING Nº: 58-21

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